AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (PREVIOUSLY PRESENTED) A method for selecting one or more Diversity Handover, DHO, nodes executing a macro diversity functionality, in a mobile telecommunication network wherein the macro diversity functionality is distributed to one or a plurality of DHO nodes including a Radio Network Controller, RNC, its connected Node B(s) in said network, and any DHO enabled node(s) therebetween, the method comprising:

a. obtaining topology information comprising a hop-by-hop route from the RNC to each of its connected Node Bs and at least one metric for each hop in the route, and

b. using an algorithm for selecting one or more DHO node(s), whereby the algorithm comprises:

forming a macro diversity tree of the routes based on the obtained topology information, and

selecting the Node B(s) and/or the RNC and/or other DHO enabled node(s), that result in a best accumulated metric for all potential data flows between the RNC and its connected Node B(s) in the macro diversity tree of routes, as the DHO node(s),

c. checking that a maximum allowed delay is not exceeded for a data path for each of the selected one or more DHO node(s) by using a delay metric

from the topology information, and when the maximum allowed delay is exceeded, performing a delay reduction procedure until the maximum allowed delay is not exceeded,

wherein the delay reduction procedure comprises removing one or more already selected DHO nodes from the path.

2. (PREVIOUSLY PRESENTED) The method according to claim 1, wherein the topology information further comprises for each non-DHO enabled node in the topology information an indication of a closest DHO enabled node.

3. (PREVIOUSLY PRESENTED) The method according to claim 1, wherein the forming-step comprises:

identifying branching nodes in said tree of routes, and

identifying the relative interconnections of said branching nodes and the connections to Node Bs and the RNC of said branching nodes.

4. (PREVIOUSLY PRESENTED) The method according to claim 1, wherein the at least one metric comprises the delay metric and a generic cost metric and wherein the step of selecting the DHO Node(s) with the best accumulated metric comprises:

selecting the DHO node(s) resulting in the smallest accumulated cost for all potential data flows between the RNC and its connected Node B(s) in the macro diversity tree, as the DHO node(s),

when the accumulated cost is substantially the same for two or more potential DHO nodes, selecting as the DHO node the potential DHO node that results in the smallest accumulated delay metric for all potential data flows between the RNC and its connected Node B(s) in the macro diversity tree.

5. (PREVIOUSLY PRESENTED) The method according to claim 1, wherein the at least one metric comprises a generic cost.

6. (PREVIOUSLY PRESENTED) The method according to claim 1, wherein the at least one metric comprises the delay metric.

7. (PREVIOUSLY PRESENTED) The method according to claim 6, further comprising:

combining the delay metric with node synchronisation measurement in order to determine if the maximum allowed delay is exceeded.

8. (PREVIOUSLY PRESENTED) The method according to claim 1, wherein the at least one metric comprises the delay metric and a generic cost

metric and wherein the step of selecting the DHO Node(s) with the best accumulated metric comprises:

tentatively selecting a potential DHO node,

checking whether a delay of a potential data flow between the RNC and one of its connected Node Bs would exceed the maximum allowed delay if it were to traverse the potential DHO node, and

selecting the potential DHO node as the DHO node for said potential data flow if said maximum allowed delay is not exceeded.

9. (PREVIOUSLY PRESENTED) The method according to claim 1, wherein the topology information is obtained through manual or semi-automatic management operations in the RNC.

10. (PREVIOUSLY PRESENTED) The method according to claim 1, wherein the topology information is obtained via a link state routing protocol used in a transport network.

11. (PREVIOUSLY PRESENTED) The method according to claim 1, wherein the topology information is obtained by using a traceroute mechanism that allows the RNC to discover the hop-by-hop route to each Node B.

12. (PREVIOUSLY PRESENTED) The method according to claim 1, wherein the topology information is obtained by retrieving the topology information from a neighboring RNC in the network.

13. (PREVIOUSLY PRESENTED) The method according to claim 1, further comprising:

preparing a DHO related signaling message to be conveyed to a DHO tree node that is a node that is or is planned to be a part of the macro diversity tree,

including in the signaling message one or more transport layer addresses and one or more transport bearer reference parameters in order to direct one or more inter-DHO tree node data flows of the macro diversity tree, and

sending said signaling message to said DHO tree node in order to provide DHO related instructions to said DHO tree node.

14. (PREVIOUSLY PRESENTED) The method according to claim 13, further comprising:

replacing the transport layer address and transport bearer reference parameter of the RNC by the transport layer address and transport bearer reference parameter of a DHO tree node that is hierarchically higher than said DHO tree node in a regular signaling message sent to said DHO tree node in order to direct a data flow between said DHO tree node and said higher DHO tree node in the DHO tree node hierarchy.

15. (PREVIOUSLY PRESENTED) The method according to claim 13, wherein the including step comprises:

including one or more transport layer addresses and one or more transport bearer reference parameters of one or more DHO tree node(s) that are hierarchically lower than said DHO tree node in a signaling message sent to said DHO tree node in order to direct one or more data flows between said DHO tree node and said one or more lower DHO tree node(s) in the DHO node hierarchy.

16. (PREVIOUSLY PRESENTED) The method according to claim 13, wherein said transport layer addresses are IP addresses and said transport bearer reference parameters are UDP ports.

17. (PREVIOUSLY PRESENTED) The method according to claim 13, wherein said transport layer addresses are ATM addresses and said transport bearer reference parameters are SUGR parameters.

18. (PREVIOUSLY PRESENTED) The method according to claim 13, further comprising:

including in the signaling message Quality of Service (QoS) indications for the data flow(s) to be directed.

19. (PREVIOUSLY PRESENTED) The method according to claim 13, further comprising:

including timing parameters in the signaling message to be used in an uplink combining procedure in the DHO tree node receiving said signaling message.

20. (PREVIOUSLY PRESENTED) The method according to claim 13, further comprising:

including a time indication in the signaling message indicating when the DHO related instructions in the signaling message are to be effectuated in the DHO tree node receiving said signaling message.

21. (ORIGINAL) The method according to claim 20, wherein said time indication is a connection frame number, CFN, pertaining to a Dedicated Channel Frame Protocol, DCH FP, in a UMTS Terrestrial Radio Access Network, UTRAN.

22. (PREVIOUSLY PRESENTED) The method according to claim 13, wherein said signaling message is sent from a neighboring RNC.

23. (ORIGINAL) The method according to claim 22, wherein said signaling message is a Node B Application Part, NBAP, message.

Claims 24-25 (CANCELED)

26. (PREVIOUSLY PRESENTED) A Radio Network Controller, RNC, adapted for selecting one or more Diversity Handover, DHO, nodes executing a macro diversity functionality in a mobile telecommunication system, wherein the macro diversity functionality is distributed to one or a plurality of DHO nodes such as the RNC, its connected Node Bs in said network and any DHO enabled node(s) therebetween, the RNC comprising:

means for obtaining topology information comprising a hop-by-hop route from the RNC to each of its connected Node Bs and at least one metric for each hop in the route,

means for selecting one or more DHO node(s), whereby said means comprises:

means for forming a macro diversity tree of the routes based on the obtained topology information, and

means for selecting the Node B(s) and/or the RNC and/or other DHO enabled node(s), that result in a best accumulated metric for all potential data flows between the RNC and its connected Node B(s) in the macro diversity tree of routes, as the DHO node(s),

means for checking that a maximum allowed delay is not exceeded for a data path for each of the selected one or more DHO node(s) by using the delay metric from the topology information, and

means for performing, when the maximum allowed delay is exceeded, a delay reduction procedure until the maximum allowed delay is not exceeded, wherein the delay reduction procedure comprises removing one or more already selected DHO nodes from the path.

27. (PREVIOUSLY PRESENTED) The RNC according to claim 26, wherein the topology information further comprises for each non-DHO enabled node in the topology information an indication of a closest DHO enabled node.

28. (PREVIOUSLY PRESENTED) The RNC according to claim 26, wherein the means for forming the macro diversity tree comprises:

means for identifying branching nodes in said tree of routes, and

means for identifying the relative interconnections of said branching nodes and the connections to Node Bs and the RNC of said branching nodes.

29. (PREVIOUSLY PRESENTED) The RNC according to claim 26, wherein the at least one metric comprises the delay metric and a generic cost metric and wherein the means for selecting the DHO Node(s) with the best accumulated metric comprises:

means for selecting the DHO node(s) resulting in the smallest accumulated cost for all potential data flows between the RNC and its connected Node B(s) in the macro diversity tree, as the DHO node(s), and

means for, when the accumulated cost is substantially the same for two or more potential DHO nodes, selecting as the DHO node the potential DHO node that results in the smallest accumulated delay metric for all potential data flows between the RNC and its connected Node B(s) in the macro diversity tree.

30. (PREVIOUSLY PRESENTED) The RNC according to claim 26, wherein the at least one metric comprises a generic cost.

31. (PREVIOUSLY PRESENTED) The RNC according to claim 26, wherein the at least one metric comprises the delay metric.

32. (PREVIOUSLY PRESENTED) The RNC according to claim 31, wherein the RNC further comprises means for combining the delay metric with node synchronisation measurement in order to determine if the maximum allowed delay is exceeded.

33. (PREVIOUSLY PRESENTED) The RNC according to claim 26, wherein the at least one metric comprises the delay metric and a generic cost

metric and wherein the means for selecting the DHO Node(s) with the best accumulated metric comprises:

means for tentatively selecting a potential DHO node,

means for checking whether a delay of a potential data flow between the RNC and one of its connected Node Bs would exceed the maximum allowed delay if it were to traverse the potential DHO node, and

means for selecting the potential DHO node as the DHO node for said potential data flow if said maximum allowed delay is not exceeded.

34. (PREVIOUSLY PRESENTED) The RNC according to claim 26, wherein the topology information is obtained through manual or semi-automatic management operations in the RNC.

35. (PREVIOUSLY PRESENTED) The RNC according to claim 26, wherein the topology information is obtained via a link state routing protocol used in a transport network.

36. (PREVIOUSLY PRESENTED) The RNC according to claim 26, wherein the topology information is obtained by using a traceroute mechanism that allows the RNC to discover the hop-by-hop route to each Node B.

37. (PREVIOUSLY PRESENTED) The RNC according to claim 26, wherein the topology information is obtained by retrieving the topology information from a neighboring RNC in the network.

38. (PREVIOUSLY PRESENTED) The RNC according to claim 26, wherein the RNC further comprises:

means for preparing a DHO related signaling message to be conveyed to a DHO tree Node that is a node that is or is planned to be a part of a macro diversity tree,

means for including in the signaling message one or more transport layer addresses and one or more transport bearer reference parameters in order to direct one or more inter-DHO tree node data flows of the macro diversity tree, and

means for sending said signaling message to said DHO tree Node in order to provide DHO related instructions to said DHO tree node.

39. (PREVIOUSLY PRESENTED) The RNC according to claim 38, wherein the means for including comprises means for replacing the transport layer address and transport bearer reference parameter of the RNC by the transport layer address and transport bearer reference parameter of a DHO tree node that is hierarchically higher than said DHO tree node in a regular signaling message sent to said DHO tree node in order to direct a data flow

between said DHO tree node and said higher DHO tree node in the DHO tree node hierarchy.

40. (PREVIOUSLY PRESENTED) The RNC according to claim 38, wherein the means for including comprises means for including one or more transport layer addresses and one or more transport bearer reference parameters of one or more DHO tree node(s) that are hierarchically lower than said DHO tree node in a signaling message sent to said DHO tree node in order to direct one or more data flows between said first DHO tree node and said one or more lower DHO tree node(s) in the DHO tree node hierarchy.

41. (PREVIOUSLY PRESENTED) The RNC according to claim 38, wherein said transport layer addresses are IP addresses and said transport bearer reference parameters are UDP ports.

42. (PREVIOUSLY PRESENTED) The RNC according to claim 38, wherein said transport layer addresses are ATM addresses and said transport bearer reference parameters are SUGR parameters.

43. (PREVIOUSLY PRESENTED) The RNC according to claim 38, further comprising means for including in the signaling message Quality of Service (QoS) indications for the data flow(s) to be directed.

44. (PREVIOUSLY PRESENTED) The RNC according to claim 38, further comprising means for including timing parameters in the signaling message to be used in the uplink combining procedure in the DHO tree node receiving said signaling message.

45. (PREVIOUSLY PRESENTED) The RNC according to claim 38, further comprises means for including a time indication in the signaling message indicating when the DHO related instructions in the signaling message are to be effectuated in the DHO tree node receiving said signaling message.

46. (ORIGINAL) The RNC according to claim 45, wherein said time indication is a connection frame number, CFN, pertaining to a Dedicated Channel Frame Protocol, DCH FP, in a UMTS Terrestrial Radio Access Network, UTRAN.

47. (PREVIOUSLY PRESENTED) The RNC according to claim 38, wherein said signaling message is a Node B Application Part, NBAP, message.

48. (PREVIOUSLY PRESENTED) The method according to claim 1, wherein plural DHO nodes remain after completing the delay reduction procedure.

49. (PREVIOUSLY PRESENTED) The method according to claim 1, wherein the macro diversity functionality remains after completing the delay reduction procedure.

50. (PREVIOUSLY PRESENTED) The method according to claim 1, wherein the macro diversity tree consists of only the Node B(s), the RNC, and/or branching nodes.

51. (PREVIOUSLY PRESENTED) The RNC according to claim 26, wherein plural DHO nodes remain after the means for performing the delay reduction procedure completes performing the delay reduction procedure.

52. (PREVIOUSLY PRESENTED) The RNC according to claim 26, wherein the macro diversity functionality remains after the means for performing the delay reduction procedure completes performing the delay reduction procedure.

53. (PREVIOUSLY PRESENTED) The RNC according to claim 26, wherein the macro diversity tree consists of only the Node B(s), the RNC, and/or branching nodes.

54. (PREVIOUSLY PRESENTED) A method to select one or more DHO (Diversity Handover) nodes to perform macro diversity functionality in a mobile communications network for a mobile terminal, comprising:

obtaining a topology information of the mobile communications network, wherein the topology information includes a generic cost metric for each hop and a delay metric different than the generic cost metric also for each hop;

forming route tree for plural data paths from an RNC of the mobile communications network to plural Node Bs of the mobile communications network involved in the macro diversity;

identifying all branching nodes in the route tree;

for each branching node, selecting a candidate DHO node, wherein the candidate DHO node corresponding to the branching node is a DHO enabled node with a smallest accumulated generic cost metric between the branching node and the candidate DHO node; and

for each data path of the plural paths corresponding to a path between the RNC and one of the Node Bs involved in the macro diversity, selecting among the candidate DHO nodes that ensure that an accumulated delay of the data path does not exceed a predetermined maximum allowed delay as the DHO nodes for the path.

55. (PREVIOUSLY PRESENTED) The method according to claim 54, wherein the act of selecting among the candidate nodes for the data path comprises:

determining, based on the delay metrics of the hops in the data path, whether the accumulated delay in the data path is greater than the predetermined maximum allowed delay;

removing one or more candidate DHO nodes for the data path until the accumulated delay does not exceed the predetermined maximum allowed delay; and

selecting the remaining candidate DHO node or nodes as the DHO node or nodes for the data path.

56. (PREVIOUSLY PRESENTED) The method according to claim 54, wherein plural DHO nodes are selected.

57. (PREVIOUSLY PRESENTED) The method according to claim 54, further comprising:

forming a simplified schematic tree based on the route tree, wherein the simplified schematic tree only includes the RNC, the Node Bs, and the branching nodes,

wherein the act of identifying all branching nodes includes identifying the branching nodes based on the simplified schematic tree.